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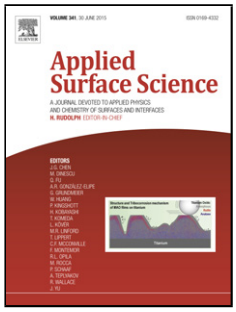

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Wetting behaviour and drag reduction of superhydrophobic layered double hydroxides films on aluminum

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Abstract

We present a novel method to fabricate Zn-Al LDH (layered double hydroxides) film with 3D flower-like micro-and nanostructure on the aluminum foil. The wettability of the Zn-Al LDH film can be easily changed from superhydrophilic to superhydrophobic with a simple chemical modification. The as-prepared superhydrophobic surfaces have water CAs (contact angles) of 165±2 °. In order to estimate the drag reduction property of the surface with different adhesion properties, the experimental setup of the liquid/solid friction drag is proposed. The drag reduction ratio for the as-prepared superhydrophobic sample is 20~30% at low velocity. Bearing this in mind, we construct superhydrophobic surfaces that have numerous technical applications in drag reduction field.